IMPACT FEES

FOR

FIRE PROTECTION FACILITIES

IN

SUMTER COUNTY, FLORIDA

Henderson
Young &
Company

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1. INTRODUCTION

This study of impact fees for fire protection facilities for Sumter County, Florida presents the methodology, summarizes the data, and explains the calculation of the fees. The methodology is designed to comply with the requirements of Florida law.

Definition and Rationale of Impact Fees

Impact fees are charges paid by new development to reimburse local governments for the capital cost of public facilities that are needed to serve new development and the people who occupy the new development. New development is synonymous with "growth."

Local governments charge impact fees on either of two bases. First, as a matter of policy and legislative discretion, they may want new development to pay the full cost of its share of new public facilities because that portion of the facilities would not be needed except to serve the new development. In this case, the new development is required to pay for all the cost of its share of new public facilities.

On the other hand, local governments and may use other sources of revenue to pay for the new public facilities that are required to serve new development. If, however, such revenues are not sufficient to cover the entire costs of new facilities necessitated by new development, the new development may be required to pay an impact fee in an amount equal to the difference between the total cost and the other sources of revenue.

There are many kinds of "public facilities" that are needed by new development, including fire protection facilities, parks, schools, roads, water and sewer plants, libraries, and other government facilities. This study covers fire protection facilities in Sumter County, Florida. Impact fees for fire protection facilities are charged to all residential and non-residential development within the Sumter County Fire service area.

Rules Governing Impact Fees in Florida

Impact fees for public facilities have been upheld by the Florida Supreme Court. Several court cases[1] provide direction in three broad areas of the development of impact fees: (1) who pays, and how much (the "fair share" rules), (2) where and how the fee can be used (the dual "nexus of benefit" rules), and (3) offsets against the fee (the "credits" rules).

First, the "fair share" rules require that impact fees can be charged only for the portion of the cost of public capital facilities that is attributable to new development. Impact fees cannot be charged to pay for the cost of reducing or eliminating deficiencies in existing facilities. Within this broad rule, specific guidance is given in several areas:

- It is permitted to distinguish among the impacts of different types of growth in establishing fee amounts (i.e., single family homes can be shown to have different impacts than multi-family dwelling units or mobile homes, therefore the impact fees for each type of dwelling can be different than the other types).

- Fee-payers should be able to pay a smaller fee if they can demonstrate that their development will have less impact than is presumed in the calculation of the impact fee schedule for their classification of property. Such reduced impact must be permanent and enforceable (i.e., through land use restrictions).

- Costs of facilities that will be used by new development and existing users must be apportioned between the two groups in determining the amount of the fee. For example, the cost of the facility can be divided by its capacity to calculate the cost per unit of capacity. New development and existing development are both charged the same cost per unit, thus ensuring equitable cost apportionment.

Second, the dual "nexus of benefit" rules require a demonstrated reasonable connection (1) between the need for public capital facilities and the growth from the

[1] The following five significant court cases guide the development of impact fees in Florida: Contractors and Builders Association of Pinellas County v. City of Dunedin. 329 So.2d 314 (Fla. 1976); Hollywood, Inc. v. Broward County. 431 So.2d 606 (Fla. 4th DCA 1983); Home Builders and Contractors Association of Palm Beach County, Inc. v. Board of County Commissioners of Palm Beach County. 446 So.2d 140 (Fla. 4th DCA 1983); and Seminole County v. City of Casselberry, 541 So.2d 666 (Fla. 5th DCA 1989); City of Ormond Beach v. County of Volusia, 535 So.2d 302 (Fla. 5th DCA 1968). The Local Government Comprehensive Planning and Land Development Regulation Act also touches on some aspects of impact fees.

fee-paying development, and (2) between the expenditure of fee revenue and the benefits received by the fee-paying development. These two conditions limit where and when impact fees can be collected and used.

There are many ways that the nexus of benefit can be established, including personal use and use by others in the family (direct benefit), use by persons who provide goods or services to the fee-paying property (indirect benefit), and geographical proximity (presumed benefit). The connections among needs, benefits and fees will vary according to the type of facility: libraries will have different nexus of benefits criteria than roads. The nexus of benefit for fire protection services will be based on the demand for fire and rescue services by each type of land use. A detailed description of this data is presented later in this study.

Another connection among needs, benefits and fees can be the geographical relationship between a fee-paying development and the impact on a public capital facility. Some impact fees for roads or parks use geographical zones for calculating, collecting and spending impact fees. The benefits provided by individual fire and rescue apparatus are not limited to geographic areas surrounding each station because the apparatus are frequently called upon to assist with an incident in a different area of the county when the seriousness of the incident suggests a need for additional units or when backup is requested. These response policies make fire and rescue function as a single system, and all properties benefit from improvements to any part of the system, therefore the fire impact fee for each land use category is calculated, collected, and expended in a single "zone" covering the entire geographic service area of Sumter County Fire Rescue.

Furthermore the fee revenue must be expended within a reasonable period of time, but there is no single maximum limit that applies to all impact fee expenditures. Explicit limitations on the expenditure of fees must be adequate to guide government personnel, and fee revenue must be earmarked for specific uses related to the public capital facilities. These and other requirements pertaining to the use of impact fees are contained in the impact fee ordinance.

Finally, the "credits" rules allow a fee-payer to have an impact fee reduced to reflect (1) contributions of land, cash, facilities, or other assets that meet the same need as the fee, and (2) future payments of taxes that would ordinarily be used for the same public capital facilities for which the impact fee is being charged. Without such credits, the fee-paying development might pay more than its fair share. Court cases and legislation do not prohibit a local government from establishing reasonable constraints on determining credits. For example, the location, quality and design of a donated public facility should conform to adopted local standards for such facilities.

The credit for contributions of land, cash, facilities and other assets is addressed in the impact fee ordinance. The credit for future payments of taxes is addressed in this rate study.

Data Sources

The data in this study of impact fees for fire protection services in Sumter County, Florida was provided by the Sumter County unless a different source is specifically cited.

Data Rounding

The data in this study was prepared using computer spreadsheet software. In some tables in this study, there will be very small variations from the results that would be obtained using a calculator to compute the same data. The reason for these insignificant differences is that the spreadsheet software was allowed to calculate results to more places after the decimal than is reported in the tables of these reports. The calculation to extra places after the decimal increases the accuracy of the end results, but causes occasional differences due to rounding of data that appears in this study.

2. NEXUS OF BENEFITS OF FIRE PROTECTION SERVICES

As described in the introduction, there must be a dual nexus between the benefits of fire protection services and new development that is charged an impact fee to pay for a portion of the fire and rescue services that it needs. This chapter is devoted to an analysis of the nexus.

There are several considerations that affect the "rational nexus of benefits" for fire protection services impact fees: (A) responsibility for fire protection services, (B) the need for new fire protection services facilities for new development, (C) the type of property that receives the benefits from new fire protection services facilities, and (D) the location of the property in relation to the new fire protection services facilities.

A. Responsibility for Fire Protection Services.

Sumter County Fire Rescue was formed through the unification of the following 10 separate fire departments that existed in Sumter County prior to October 1, 2002: Bushnell, Center Hill, Coleman, Croom-A-Coochee, Lake Panasoffkee, Oxford, Royal, Tri-County, Webster, and Wildwood. With this unification Sumter County Fire Rescue is the sole provider of fire protection and first response rescue services for all of Bay County except for "The Villages" area of Sumter County, which has it's own Department of Public Safety. Advanced life support emergency medical services and transport is provided by the Lake/Sumter County EMS.

The Sumter County Fire Rescue inventory includes 35 primary response apparatus operating out of 10 stations. A summary inventory of the County's primary response apparatus is shown in Table 1, and the stations are listed in Table 2.

The average annual responses for *one* of each type of fire and rescue apparatus is also shown in Table 1. The average number of emergency responses per type of apparatus is calculated by dividing the number of annual emergency runs by the number of apparatus making those runs. In many cases, more than one apparatus is dispatched to an emergency incident. The number and type of apparatus dispatched to each incident varies depending on the type and severity of the incident.

In addition to the primary response apparatus, Sumter County Fire Rescue has 15 reserve apparatus that are dispatched as needed when a primary unit is out of service for repairs or maintenance. The reserve units are not routinely dispatched and are excluded from the impact fee analysis because they are not used frequently enough to have a material effect on the cost of providing fire and rescue services.

Table 1: Fire Protection Services Inventory of Apparatus

Type of Apparatus	Primary Response Apparatus Inventory	Annual Emergency Responses	Average Emergency Responses Per Apparatus
Aerial Tower	1	68	68
Engine	14	1,947	1,000[2]
Rescue/Brush	14	5,629	402
Tender/Tanker	6	148	25
Total Primary Response	35	7,792	

Sumter County Fire Rescue provides fire and rescue services out of 10 stations. Table 2 shows the square footage of these 10 stations. Table 2 also shows the total fire and rescue incidents, and the average square feet of fire station per incident (calculated by dividing the total square footage of all fire stations by the number of annual incidents).

[2] The actual average emergency responses by engines in Sumter is 139 per engine, however this includes all engines, including volunteer units that respond to relatively few emergencies each year. For the purpose of calculating the fire impact fee, it is assumed that an engine can respond to 1,000 emergencies per year while maintaining acceptable response times. This assumption causes the impact fee to represent the lower cost per response of an urbanizing fire service, rather than the higher cost per response of a more rural volunteer fire service.

Table 2: Fire Protection Station Inventory

Station	Fire Protection Station Inventory (Square Footage)	Annual Fire and Rescue Incidents	Station Square Feet per Incident
Station 11	4,297		
Station 12	2,700		
Station 14	5,536		
Station 21	3,154		
Station 28	4,700		
Station 29	3,000		
Station 31	5,893		
Station 32	5,355		
Station 33	2,072		
Station 34	4,032		
Total	40,739	6,082	6.70

B. The Need for New Fire Protection Services Facilities to Serve New Development

The need for fire protection services facilities is influenced by a variety of factors, such as response time, call loads, geographical area, topographic and manmade barriers, and standards of the National Fire Protection Association.

For the purpose of quantifying the need for fire protection services apparatus and stations, this study uses the ratio of emergency incidents to fire and rescue units and stations. As greater growth occurs, more incidents occur, therefore more apparatus and stations are needed to maintain standards.

During 2003, Sumter County Fire's 35 primary response units were dispatched a total of 7,792 times to 6,082 emergency incidents (many times the seriousness of an incident requires that more than one unit respond).

C. Types of Property Benefiting from New Fire Protection Services Facilities;

Impact fees are charged to properties that benefit from new fire protection services facilities. Fire protection services are provided by Sumter County to all

properties regardless of the type of use of the property, therefore the fire protection services impact fees are charged to all residential and non-residential development within the county. Fire protection services impact fee rates are calculated separately for each type of land use.

D. Location of Property Receiving Benefits from New Fire Protection Services Facilities

As described earlier, a nexus of benefits is required between a new unit of development and the fire protection services facilities that are paid for by the impact fees from new development. One method of connecting a unit of development and a fire protection services facility would be to establish impact fee "zones" within the fire protection services facility service area. All impact fees paid by new development in the zone would be required to be spent on new fire protection services facilities in the same zone.

However, the benefits provided by individual fire protection services units are not limited to geographic areas surrounding each station within Sumter County because the apparatus are frequently called upon to assist with an incident in a different area of the county when the seriousness of the call suggests a need for additional units, when a backup unit is requested, or when the nearest unit is busy responding to a call received earlier. These response policies make fire protection services function as a single system, and all properties benefit from improvements to any part of the system, therefore the fire protection services impact fee for each land use category is calculated, collected, and expended in a single "zone" covering all of Sumter County Fire service area.

3. CAPITAL COST PER FIRE INCIDENT

This chapter identifies the capital cost of fire protection apparatus and stations that are the basis for emergency responses to fire incidents.

Annual Cost Per Apparatus

The first step in calculating the apparatus cost per fire incident is to identify and annualize the cost per type of apparatus. The capital cost per type of apparatus is based on the cost of primary response apparatus and major support equipment. The annualized capital cost per apparatus is determined by dividing the capital cost of each type of apparatus by its useful life:

Fire Apparatus Cost	÷	Useful Life	=	Annual Cost per Apparatus

Tables 3 through 6 show the annualized cost for each type of primary apparatus listed in Table 1: Aerial Tower, Engine, Rescue/Brush Vehicle and a Tender/Tanker. Major components of the apparatus are listed in the first column of Tables 3 through 6. The apparatus and equipment costs in Tables 3 through 6 represent current costs to purchase a new fully equipped apparatus (except the cost in Table 3 represents the cost to purchase a refurbished apparatus rather than a new one).

Tables 3 through 6 also show the number of years of useful life of the cost components of each type of apparatus. The annualized cost is calculated by dividing each component's cost by the useful life of that component.

Table 3: Annualized Cost of Aerial

Cost Component	Total Cost per Component	Useful Life of Component (Years)	Annual Cost
Vehicle (refurbished)	$ 400,000	10	$ 40,000.00
Communications	5,000	10	500.00
Equipment	55,000	10	5,500.00
Total: Vehicle and Equipment	$460,000		46,000.00

Table 4: Annualized Cost of Engine

Cost Component	Total Cost per Component	Useful Life of Component (Years)	Annual Cost
Vehicle	$ 210,000	15	$ 14,000.00
Communications	5,000	15	333.33
Equipment	55,000	15	3,666.67
Total: Vehicle and Equipment	270,000		18,000.00

Table 5: Annualized Cost of Rescue/Brush Vehicle

Cost Component	Total Cost per Component	Useful Life of Component (Years)	Annual Cost
Vehicle	$ 80,000	6	$ 13,333.33
Communications	5,000	6	833.33
Equipment	40,000	6	6,666.67
Total: Vehicle and Equipment	125,000		20,833.33

Table 6: Annualized Cost of Tender/Tanker

Cost Component	Total Cost per Component	Useful Life of Component (Years)	Annual Cost
Vehicle	$ 175,000	15	$ 11,666.67
Communications	5,000	15	333.33
Equipment	55,000	15	3,666.67
Total: Vehicle and Equipment	235,000		15,666.67

Cost Per Apparatus Per Fire or Rescue Incident

The capital cost per fire or rescue incident is calculated for each apparatus by dividing the annualized cost per apparatus by the total annual incidents (both fire and rescue) each type of apparatus responds to. Each type of apparatus is analyzed

separately because the number and type of apparatus responding to an incident varies depending on the type and severity of the incident.

Annual Cost Per Apparatus	÷	Annual Responses Per Apparatus	=	Cost Per Apparatus Per Response

In Table 7 the cost per emergency response is calculated for each type of apparatus. Table 7 shows the annualized cost of *one* of each type of apparatus (from Tables 3 through 6) and the average annual emergency responses for each type of apparatus (from Table 1). Each apparatus cost per response is calculated by dividing the annualized cost of that type of apparatus by the total number of annual responses for the same type of apparatus.

Table 7: Cost per Apparatus per Response

Type Of Apparatus	Annual Apparatus Cost	Average Annual Responses Per Rescue Unit	Apparatus Cost Per Response
Aerial	$ 46,000.00	68	$ 676.47
Engine	18,000.00	1,000	18.00
Rescue/Brush Vehicle	20,833.33	402	51.82
Tender/Tanker	15,666.67	25	635.14

Total Apparatus Cost Per Fire Incident

The total apparatus cost per fire incident is calculated by multiplying the cost per apparatus per response by the percent of fire incidents each type of apparatus responds to. This calculation accounts for the fact that multiple apparatus are dispatched to many incidents. The result of this calculation is a weighted average total cost of apparatus per fire incident.

Cost Per Apparatus Per Response	x	Apparatus Percent of Fire Responses	=	Total Apparatus Cost Per Fire Incident

The next step in calculating the apparatus cost per fire incident is to identify the annual number of incidents that Sumter County Fire Rescue responded to. Emergency incidents are separated into two categories: Fire and Rescue. Table 8 lists the annual number of fire and rescue incidents responded to during 2003.

Table 8: Annual Fire and Rescue Incidents

Type of Incident	Annual Responses
Fire	1,995
Rescue	4,087
Total Annual	6,082

Different types of fire emergencies need different types or combinations of apparatus. As a result, the usage of apparatus varies among the types of apparatus. This variance is an important factor in determining the cost per incident. The percent of fire responses by each type of apparatus is calculated in Table 9 by dividing the annual fire responses for each type of apparatus by the total annual fire incidents from Table 8. The result of the calculation in Table 9 is the percent of fire incidents responded to by each type of apparatus. For example, Engines provided 1,631 responses to the 1,995 fire incidents, equaling 81.8% of all fire incidents. Another way to understand this data is that one average fire incident involved 0.818 engines, therefore the cost of responding to a fire incident includes 81.8% of the cost of an Engine.

Table 9: Fire Incident Response By Type of Apparatus

Type Of Apparatus	Total Annual Fire Responses For All Apparatus	Annual Fire Incidents	Percent of Fire Incidents Dispatched To
Aerial	64		3.2%
Engine	1,631		81.8%
Rescue/Brush Vehicle	1,679		84.2%
Tender/Tanker	147		7.4%
Total	3,521	1,995	

The final step in calculating the apparatus cost per fire incident is shown in Table 10. The cost per response for each type of apparatus (from Table 7) is

multiplied by the percent of fire incidents dispatched to (from Table 9) resulting in the total apparatus cost per fire incident.

The "bottom line" in Table 10 is the apparatus cost per fire incident of $126.82. In other words, every fire incident "uses up" $126.82 worth of apparatus.

Table 10: Total Apparatus Cost Per Fire Incident

Type Of Apparatus	Apparatus Cost Per Response	Annual Percent Of Fire Incidents Dispatched To	Apparatus Cost Per Fire Incident
Aerial	$ 676.47	3.2%	$ 21.70
Engine	18.00	81.8%	14.72
Rescue/Brush Vehicle	51.82	84.2%	43.61
Tender/Tanker	635.14	7.4%	46.80
Total			126.82

Annual Station Cost

The annual station cost is determined by dividing the station capital cost by its useful life.

Station Cost Per Square Foot	÷	Useful Life	=	Annual Station Cost Per Square Foot

Table 11 calculates the average annualized fire station cost per square foot. The cost per square foot is based on the cost of a typical new 5,500 square foot fire station, as documented in the County's Capital Improvement Program The costs do not include land or furnishings and equipment at the fire station.

The useful life represents the length of time the station will last before requiring significant capital cost for repair or renovation. The annualized cost is calculated by dividing the estimated cost per square foot by the average useful life. The "bottom line" of Table 11 is an annualized station cost of $2.74 per square foot.

Table 11: Annualized Station Cost Per Square Foot

Type Of Cost	Average Cost Per Square Foot of Building
Building	$ 82.05
Useful Life (years)	30
Annual Cost per Square Foot	$ 2.74

Station Cost Per Fire and Rescue Incident

The station cost per fire and rescue incident is calculated by multiplying the annual station cost per square foot by the station square feet per fire and rescue incident.

Annual Station Cost Per Square Foot	x	Station Square Feet Per Fire and Rescue Incident	=	Station Cost Per Fire and Rescue Incident

This calculation is shown in Table 12: the station cost per square foot (from Table 11) is multiplied times the station square feet per incident (from Table 2). The result is the station cost of $18.32 per fire and rescue incident. In other words, each fire and rescue incident "uses up" $18.32 worth of fire station.

Table 12: Station Cost Per Fire and Rescue Incident

Annual Station Cost Per Square Foot	Square Feet Per Fire and Rescue Incident	Station Cost Per Fire and Rescue Incident
$ 2.74	6.70	$ 18.32

4. ANNUAL COST OF FIRE INCIDENTS BY LAND USE

This chapter identifies the number and cost of responses to fire incidents at each type of land use.

Annual Fire Incident Rate Per Unit Of Development

The annual fire incident rate per unit of development (i.e., dwelling unit or square foot of non-residential development) is calculated by dividing the total annual fire incidents to each type of land use by the number of dwelling units or square feet of non-residential development for that type of land use in the Sumter County Fire service area.

Annual Emergency Fire Incidents At Each Type Of Land Use	÷	Number of Dwelling Units or Square Feet Of Each Type Of Land Use	=	Annual Fire Incidents Per Unit Of Development

The Sumter Fire and Rescue database identifies each incident by fixed property use categories designated by the National Fire Incident Reporting System (NFIRS). The 13 land use categories in this study were created by matching the NFIRS incident database to the Property Appraiser's property use codes. The land use codes of NFIRS and the Property Appraiser have been combined into broad land use categories for impact fees, such as Residential, Retail and Industrial/Manufacturing.

During 2003 Sumter County Fire Rescue responded to 1,995 fire incidents. Of the 1,995 fire incidents, 1,543 were traceable to a type of development (i.e., the incident occurred at a specific type of property such as a residence or business) or they were traffic-related (occurred on a roadway) and were included in the following detailed analysis of incidents to land uses. Of the 1,543 fire incidents analyzed, 582 occurred at a specific type of property and 961 were traffic-related. The remaining 452 fire incidents were not traceable to either a type of land use or a traffic-related incident. Table 13 shows the allocation of the 452 incidents without land use designations to the property and traffic categories using the same basis as the 1,543 incidents for which a location was identifiable. Thus 752 of the 1,995 fire incidents were allocated the same as the incidents at identifiable lands uses, and the other 1,243 fire incidents were allocated the same as the traffic-related incidents.

Table 13: Fire Incidents

Incident Location	Incidents Identifiable by Location	Incidents Not Identifiable by Location	Total Incidents
Total	1,543	452	1,995
At Properties	582	170	752
% of Total	37.7%	37.7%	37.7%
In Roads and Streets	961	282	1,243
% of Total	62.3%	62.3%	62.3%

There are four tables on the following pages that present the allocation of fire incidents among types of land use: Table 14 shows the fire incidents that were identifiable by land use type, Table 15 shows the fire incidents that were traffic-related. Table 16 combines the fire incident data, and Table 17 shows the fire incident rate per unit of development.

Table 14 shows the distribution of the 582 fire incidents that are direct to a land use along with the percent distribution of these 582 incidents. In the right hand column the total 752 fire incidents to land use (582 traceable + 170 allocated) is allocated among the land use types using the percent distribution column. The result is the total annual fire incidents at each of the land use types.

Table 14: Fire Incidents At Specific Land Uses

Land Use	Annual Fire Incidents Identifiable To Land Use	Percent Of All Fire Incidents Identifiable To Land Use	Annual Fire Incidents Allocated To Land Uses (% x 752)
Residential	387	66.49%	500
Non-Residential			
Hotel/Motel	6	1.03%	8
Hospital/Clinic	3	0.52%	4
Group Living	36	6.19%	47
Office	1	0.17%	1
Retail	49	8.42%	63
Restaurant/Bar/Lounge	12	2.06%	16
Industrial/Manufacturing	13	2.23%	17
Leisure/Outdoors	8	1.37%	10
Agriculture	5	0.86%	6
Church	6	1.03%	8
Schools/Colleges	20	3.44%	26
Government/Public Bldgs	36	6.19%	47
Total	582	100.00%	752

The traffic-related fire incidents are allocated to land uses on the basis of the amount of traffic generated by each type of land use. In Table 15, the number of dwelling units and square feet of non-residential construction in the Sumter County Fire Rescue service area is multiplied times the number of trips that are generated by each land use type as reported in the 7th Edition of Trip Generation by the Institute of Transportation Engineers (ITE). (The trip rates in are one-half of ITE's trip rates in order to account for the trips each land use generates while excluding the "return" trip). The result is the total trips associated with each land use type.

The percent of trips associated with each land use type is calculated from the total of all trips.

In the final calculation in Table 15 the total 1,243 annual fire incidents that are traffic-related (961 traceable + 282 allocated) is allocated among the land use types using the percent of trips generated.

Table 15: Traffic Related Fire Incidents (Allocated to Land Uses)

Land Use	Units Of Development in Sumter County Service Area	ITE Trip Generation Rate ÷ 2 Per Unit Of Development	Total Trips	Percent Of Trips Generated (Trips ÷ 127,490)	Annual Traffic Related Fire Incidents Per Unit Of Development (% x 1,243)
Residential	10,603 d.u	4.72500	50,099	39.30%	488
Non-Residential					
Hotel/Motel	21,448 sq.ft	0.00409	88	0.07%	1
Hospital/Clinic	106,686 sq.ft	0.00879	938	0.74%	9
Group Living	109,538 sq.ft	0.00305	334	0.26%	3
Office	321,227 sq.ft	0.00551	1,770	1.39%	17
Retail	2,283,455 sq.ft	0.02147	49,026	38.45%	478
Restaurant/Bar/Lounge	213,551 sq.ft	0.06358	13,578	10.65%	132
Industrial/Manufacturing	1,261,317 sq.ft	0.00349	4,402	3.45%	43
Leisure/Outdoors	63,343 sq.ft	0.01166	739	0.58%	7
Agriculture	673,482 sq.ft	0.00000	0	0.00%	0
Church	59,953 sq.ft	0.00456	273	0.21%	3
Schools/Colleges	216,045 sq.ft	0.00645	1,393	1.09%	14
Government/Public Bldgs	270,225 sq.ft	0.01795	4,851	3.80%	47
Total			127,490		1,243

Table 16 summarizes the results of the analysis of fire incidents. The total annual fire incidents is a combination of the fire incidents allocated among direct responses to land use categories (from Table 14) and the allocation of traffic-related incidents based on trip generation rates (from Table 15).

Table 16: Total Annual Fire Incidents By Land Use

Land Use	Annual Fire Incidents Direct To Land Use	Annual Traffic Related Fire Incidents By Land Use	Total Annual Fire Incidents By Land Use
Residential	500	488	988
Non-Residential			
Hotel/Motel	8	1	9
Hospital/Clinic	4	9	13
Group Living	47	3	50
Office	1	17	19
Retail	63	478	541
Restaurant/Bar/Lounge	16	132	148
Industrial/Manuf.	17	43	60
Leisure/Outdoors	10	7	18
Agriculture	6	0	6
Church	8	3	10
Schools/Colleges	26	14	39
Government/Public Bldgs	47	47	94
Total	752	1,243	1,995

The final step in determining the annual fire incident rate per unit of development is shown in Table 17. The total annual fire incidents for each type of land use (from Table 16) are divided by the number of dwelling units or square feet of structures to calculate the annual incident rate per dwelling unit or square foot. The units of development are the same as was used to determine traffic-related incidents (see Table 15).

The results in Table 17 show how many times an average unit of development has a fire incident to which Sumter County Fire Rescue responds. For example, a residential dwelling unit has an average of 0.0932 fire-related incidents per year. This is the same as saying that 9.32% of residential dwellings have a fire-related incident in a year. Another way of understanding this information is that an average residential dwelling unit would have a fire-related incident once every 10.7 years.

Table 17: Annual Fire Incidents By Land Use

Land Use	Total Annual Fire Incidents at Land Uses	Units Of Development		Annual Fire Incidents Per Unit Of Development	
Residential	988	10,603	d.u	0.0932406	per dwelling unit
Non-Residential					
Hotel/Motel	9	21,448	sq.ft	0.0004016	per sq ft
Hospital/Clinic	13	106,686	sq.ft	0.0001220	per sq ft
Group Living	50	109,538	sq.ft	0.0004547	per sq ft
Office	19	321,227	sq.ft	0.0000577	per sq ft
Retail	541	2,283,455	sq.ft	0.0002370	per sq ft
Restaurant/Bar/Lounge	148	213,551	sq.ft	0.0006923	per sq ft
Industrial/Manuf.	60	1,261,317	sq.ft	0.0000473	per sq ft
Leisure/Outdoors	18	63,343	sq.ft	0.0002769	per sq ft
Agriculture	6	673,482	sq.ft	0.0000096	per sq ft
Church	10	59,953	sq.ft	0.0001738	per sq ft
Schools/Colleges	39	216,045	sq.ft	0.0001826	per sq ft
Government/Public Bldgs	94	270,225	sq.ft	0.0003472	per sq ft
Total	1,995				

Fire Incident Capital Cost Per Unit Of Development

The capital cost of fire incidents per unit of development is determined by multiplying the annual fire incidents per unit of development (from Table 17) times the annual capital cost per fire incident of each type of apparatus (from Table 10) and fire station (from Table 12), then multiplying that result times the useful life of the apparatus or fire station.[3]

Annual Fire Incidents Per Unit Of Development	x	Annual Cost Per Fire Incident	x	Useful Life Of Apparatus or Station	=	Fire Incident Capital Cost Per Unit Of Development

In Tables 18 – 22 on the following pages, each fire incident rate (from Table 17) is multiplied by the annual capital cost per fire incident. The result is then multiplied times the useful life of the apparatus or station to calculate the capital cost per unit of development for each type of apparatus and station.

[3] Some fire impact fees are calculated for the economic life of the property paying the impact fee, rather than the useful life of the apparatus and stations that provide the fire protection. Both methods meet the legal requirements for impact fees. The choice of method is made by the local government adopting the impact fee. Sumter County decided to use the useful life of the apparatus and fire stations.

For example, residential dwelling units average 0.0932406 fire incidents per year (i.e., 9% of a fire incident per year). In Table 18, multiplying this incident rate times the annual capital cost of aerial tower trucks ($21.70) per incident indicates a cost of $2.0234 per dwelling unit to provide it with aerial tower trucks for one year. Since the aerial tower truck lasts 10 years, the residential dwelling needs to pay for 10 times the annual rate, for a total of $20.2344.

Table 18: Aerial Tower Cost Of Responses to Fire Incidents at Land Use Categories

Land Use	Annual Fire Incidents Per Unit of Development		Annual Aerial Tower Cost At $21.70 Per Incident	Total Aerial Tower Cost At 10 Year Life
Residential	per dwelling unit	0.0932406	2.0234	20.2344
Non-Residential				
Hotel/Motel	per sq. ft.	0.0004016	0.0087	0.0871
Hospital/Clinic	per sq. ft.	0.0001220	0.0026	0.0265
Group Living	per sq. ft.	0.0004547	0.0099	0.0987
Office	per sq. ft.	0.0000577	0.0013	0.0125
Retail	per sq. ft.	0.0002370	0.0051	0.0514
Restaurant/Bar/Lounge	per sq. ft.	0.0006923	0.0150	0.1502
Industrial/Manuf.	per sq. ft.	0.0000473	0.0010	0.0103
Leisure/Outdoors	per sq. ft.	0.0002769	0.0060	0.0601
Agriculture	per sq. ft.	0.0000096	0.0002	0.0021
Church	per sq. ft.	0.0001738	0.0038	0.0377
Schools/Colleges	per sq. ft.	0.0001826	0.0040	0.0396
Government/Public Bldgs.	per sq. ft.	0.0003472	0.0075	0.0753

Table 19 calculates the capital cost per unit of development for engines responding to fire incidents. The incident rate (from Table 17) is multiplied by the engine's capital cost per fire incident ($14.72 from Table 10). The result is then multiplied times the 15-year useful life of an engine to calculate the capital cost per unit of development for engines.

Table 19: Engine Cost Of Responses to Fire Incidents at Land Use Categories

Land Use	Annual Fire Incidents Per Unit of Development		Annual Engine Cost At $14.72 Per Incident	Engine Cost At 15 Year Life
Residential	per dwelling unit	0.0932406	1.3721	20.5816
Non-Residential				
Hotel/Motel	per sq. ft.	0.0004016	0.0059	0.0886
Hospital/Clinic	per sq. ft.	0.0001220	0.0018	0.0269
Group Living	per sq. ft.	0.0004547	0.0067	0.1004
Office	per sq. ft.	0.0000577	0.0008	0.0127
Retail	per sq. ft.	0.0002370	0.0035	0.0523
Restaurant/Bar/Lounge	per sq. ft.	0.0006923	0.0102	0.1528
Industrial/Manuf.	per sq. ft.	0.0000473	0.0007	0.0104
Leisure/Outdoors	per sq. ft.	0.0002769	0.0041	0.0611
Agriculture	per sq. ft.	0.0000096	0.0001	0.0021
Church	per sq. ft.	0.0001738	0.0026	0.0384
Schools/Colleges	per sq. ft.	0.0001826	0.0027	0.0403
Government/Public Bldgs.	per sq. ft.	0.0003472	0.0051	0.0766

Table 20 calculates the capital cost per unit of development for rescue brush trucks responding to fire incidents. The incident rate (from Table 17) is multiplied by the rescue brush truck's capital cost per fire incident ($43.61 from Table 10). The result is then multiplied times the 6-year useful life of a brush truck to calculate the capital cost per unit of development for brush trucks.

Table 20: Rescue Brush Truck Cost Of Responses to Fire Incidents at Land Use Categories

Land Use	Annual Fire Incidents Per Unit of Development		Annual Rescue Brush Cost At $43.61 Per Incident	Rescue Brush Cost At 6 Year Life
Residential	per dwelling unit	0.0932406	4.0660	24.3961
Non-Residential				
Hotel/Motel	per sq. ft.	0.0004016	0.0175	0.1051
Hospital/Clinic	per sq. ft.	0.0001220	0.0053	0.0319
Group Living	per sq. ft.	0.0004547	0.0198	0.1190
Office	per sq. ft.	0.0000577	0.0025	0.0151
Retail	per sq. ft.	0.0002370	0.0103	0.0620
Restaurant/Bar/Lounge	per sq. ft.	0.0006923	0.0302	0.1811
Industrial/Manuf.	per sq. ft.	0.0000473	0.0021	0.0124
Leisure/Outdoors	per sq. ft.	0.0002769	0.0121	0.0725
Agriculture	per sq. ft.	0.0000096	0.0004	0.0025
Church	per sq. ft.	0.0001738	0.0076	0.0455
Schools/Colleges	per sq. ft.	0.0001826	0.0080	0.0478
Government/Public Bldgs.	per sq. ft.	0.0003472	0.0151	0.0908

Table 21 calculates the capital cost per unit of development for tender tankers responding to fire incidents. The incident rate (from Table 17) is multiplied by the tender tanker's capital cost per fire incident ($46.80 from Table 10). The result is then multiplied times the 15-year useful life of a tender tanker to calculate the capital cost per unit of development for tender tankers.

Table 21: Tender Tanker Cost Of Responses to Fire Incidents at Land Use Categories

Land Use	Annual Fire Incidents Per Unit of Development		Annual Tender Tanker Cost At $46.80 Per Incident	Tender Tanker Cost At 15 Year Life
Residential	per dwelling unit	0.0932406	4.3636	65.4541
Non-Residential				
Hotel/Motel	per sq. ft.	0.0004016	0.0188	0.2819
Hospital/Clinic	per sq. ft.	0.0001220	0.0057	0.0857
Group Living	per sq. ft.	0.0004547	0.0213	0.3192
Office	per sq. ft.	0.0000577	0.0027	0.0405
Retail	per sq. ft.	0.0002370	0.0111	0.1664
Restaurant/Bar/Lounge	per sq. ft.	0.0006923	0.0324	0.4860
Industrial/Manuf.	per sq. ft.	0.0000473	0.0022	0.0332
Leisure/Outdoors	per sq. ft.	0.0002769	0.0130	0.1944
Agriculture	per sq. ft.	0.0000096	0.0004	0.0067
Church	per sq. ft.	0.0001738	0.0081	0.1220
Schools/Colleges	per sq. ft.	0.0001826	0.0085	0.1282
Government/Public Bldgs.	per sq. ft.	0.0003472	0.0162	0.2437

Table 22 calculates the capital cost per unit of development for fire stations that house fire apparatus. The fire incident rate (from Table 17) is multiplied by the fire station's capital cost per fire and rescue incident ($18.32 from Table 12). The result is then multiplied times the 30-year useful life of a fire station to calculate the capital cost per unit of development for fire stations.

Table 22: Fire Station Cost Of Responses to Fire Incidents at Land Use Categories

Land Use	Annual Fire Incidents Per Unit of Development		Fire Station Cost At $18.32 Per Incident	Fire Station Cost At 30 Year Life
Residential	per dwelling unit	0.0932406	1.7082	51.2445
Non-Residential				
Hotel/Motel	per sq. ft.	0.0004016	0.0074	0.2207
Hospital/Clinic	per sq. ft.	0.0001220	0.0022	0.0671
Group Living	per sq. ft.	0.0004547	0.0083	0.2499
Office	per sq. ft.	0.0000577	0.0011	0.0317
Retail	per sq. ft.	0.0002370	0.0043	0.1302
Restaurant/Bar/Lounge	per sq. ft.	0.0006923	0.0127	0.3805
Industrial/Manuf.	per sq. ft.	0.0000473	0.0009	0.0260
Leisure/Outdoors	per sq. ft.	0.0002769	0.0051	0.1522
Agriculture	per sq. ft.	0.0000096	0.0002	0.0053
Church	per sq. ft.	0.0001738	0.0032	0.0955
Schools/Colleges	per sq. ft.	0.0001826	0.0033	0.1003
Government/Public Bldgs.	per sq. ft.	0.0003472	0.0064	0.1908

Table 23 combines the capital costs of all types of apparatus and station (from Tables 18 – 22) to show the total capital cost of responses to fire incidents per unit of development. For example, residential dwelling unit costs are added as follows:

Cost Component	Cost	Source
Aerial Tower	$ 20.2344	Table 18
Engine	20.5816	Table 19
Rescue/Brush	24.3961	Table 20
Tender Tanker	65.4541	Table 21
Station	51.2445	Table 22
Total	181.91	

This example is repeated for each land use to combine its capital costs of all types of apparatus and station in Table 23.

Table 23: Total Capital Cost Of Responses to Fire Incidents at Land Use Categories

Land Use	Unit of Development	Fire Incident Cost of All Apparatus and Station
Residential	per dwelling unit	181.91
Non-Residential		
Hotel/Motel	per sq. ft.	0.78
Hospital/Clinic	per sq. ft	0.24
Group Living	per sq. ft.	0.89
Office	per sq. ft.	0.11
Retail	per sq. ft.	0.46
Restaurant/Bar/Lounge	per sq. ft.	1.35
Industrial/Manuf.	per sq. ft.	0.09
Leisure/Outdoors	per sq. ft.	0.54
Agriculture	per sq. ft.	0.02
Church	per sq. ft.	0.34
Schools/Colleges	per sq. ft.	0.36
Government/Public Bldgs.	per sq. ft.	0.68

5. CAPITAL COST PER RESCUE INCIDENT

This chapter identifies the capital cost of apparatus and stations that are the basis for emergency responses to rescue incidents.

Annual Cost Per Apparatus

The annual cost per type of apparatus is the same as Tables 3 through 6:

Cost Per Apparatus Per Fire or Rescue Incident

The cost per apparatus per fire or rescue incident is the same as Table 7.

Total Apparatus Cost Per Rescue Incident

The calculation of apparatus cost per rescue incident is similar to the calculation of fire costs in Table 10. The total apparatus cost per rescue incident is calculated by multiplying the cost per apparatus per response by the percent of rescue incidents each type of apparatus responds to. This calculation accounts for the fact that multiple apparatus are dispatched to many incidents. The result of this calculation is a weighted average total cost of apparatus per rescue incident.

Cost Per Apparatus Per Response	x	Apparatus Percent of Rescue Responses	=	Total Apparatus Cost Per Rescue Incident

Different types of rescue emergencies need different types or combinations of apparatus. As a result, the usage of apparatus varies among the types of apparatus. This variance is an important factor in determining the cost per incident. The percent of rescue responses by each type of apparatus is calculated in Table 24 by dividing the annual rescue responses for each type of apparatus by the total annual rescue incidents from Table 8. The result of the calculation in Table 24 is the percent of rescue incidents responded to by each type of apparatus. For example, Rescue/Brush Vehicles provided 3,936 responses to the 4,087 rescue incidents, equaling 96.3% of all rescue incidents. Another way to understand this data is that one average rescue incident involved 0.963 rescue/brush vehicles

therefore the cost of responding to a rescue incident includes 96.3% of the cost of a Rescue/Brush vehicle.

Table 24: Rescue Incident Response By Type of Apparatus

Type Of Apparatus	Total Annual Rescue Responses For All Apparatus	Annual Rescue Incidents	Percent of Rescue Incidents Dispatched To
Aerial	4		0.1%
Engine	286		7.0%
Rescue/Brush Vehicle	3,936		96.3%
Tender/Tanker	1		0.0%
Total	4,227	4,087	

The final step in calculating the apparatus cost per rescue incident is shown in Table 25. The cost per response for each type of apparatus (from Table 7) is multiplied by the percent of rescue incidents dispatched to (from Table 24) resulting in the total apparatus cost per rescue incident.

The "bottom line" in Table 25 is the apparatus cost per rescue incident of $51.82. In other words, every rescue incident "uses up" $51.82 worth of apparatus.

Table 25: Total Apparatus Cost Per Rescue Incident

Type Of Apparatus	Apparatus Cost Per Response	Annual Percent of Rescue Incidents Dispatched To	Apparatus Cost Per Rescue Incident
Aerial	$ 676.47	0.1%	$ 0.66
Engine	18.00	7.0%	1.26
Rescue/Brush Vehicle	51.82	96.3%	49.90
Tender/Tanker	635.14	0.0%	0.00
Total			51.82

Station Cost per Fire and Rescue Incident

The station cost per Rescue incident is the same as Table 12.

6. ANNUAL COST OF RESCUE INCIDENTS BY LAND USE

This chapter identifies the number and cost of responses to rescue incidents at each type of land use.

Annual Rescue Incident Rate Per Unit Of Development

In this chapter the annual rescue incident rate per unit of development is calculated using the same methodology as described for fire incidents in Chapter 4.

During 2003 Sumter County Fire Rescue responded to 4,087 rescue incidents. Of the 4,087 rescue incidents 4,034 were traceable to a type of development (i.e., the incident occurred at a specific type of property such as a residence or business) or they were traffic-related (occurred on a roadway) and were included in the following detailed analysis of incidents to land uses. Of the 4,034 rescue incidents analyzed 3,755 occurred at a specific type of property and 279 were traffic-related. The remaining 53 rescue incidents were not traceable to either a type of land use or a traffic-related incident. Table 26 shows the allocation of the 53 incidents without land use designations to the property and traffic categories using the same basis as the 4,034 incidents for which a location was identifiable. Thus 3,804 of the 4,087 rescue incidents were allocated the same as the incidents at identifiable lands uses, and the other 283 rescue incidents were allocated the same as the traffic-related incidents.

Table 26: Rescue Incidents

Incident Location	Incidents Identifiable by Location	Incidents Not Identifiable by Location	Total Incidents
Total	4,034	53	4,087
At Properties	3,755	49	3,804
% of Total	93.1%	93.1%	93.1%
In Roads and Streets	279	4	283
% of Total	6.9%	6.9%	6.9%

There are four tables that present the allocation of rescue incidents among types of land use: Table 27 shows the rescue incidents that were identifiable by land use type, Table 28 shows the rescue incidents that were traffic-related. Table 29 combines the rescue incident data, and Table 30 shows the rescue incident rate per unit of development.

Table 27 shows the distribution of the 3,755 rescue incidents that are direct to a land use along with the percent distribution of these 3,755 incidents. In the right hand column the total 3,804 rescue incidents to land use (3,755 traceable + 49 allocated) is allocated among the land use types using the percent distribution column. The result is the total annual rescue incidents at each of the land use types.

Table 27: Rescue Incidents At Specific Land Uses

Land Use	Annual Rescue Incidents Identifiable To Land Use	Percent Of All Rescue Incidents Identifiable To Land Use	Annual Rescue Incidents Allocated To Land Uses (% x 3,804)
Residential	2,995	79.76%	3,034
Non-Residential			
Hotel/Motel	15	0.40%	15
Hospital/Clinic	81	2.16%	82
Group Living	271	7.22%	275
Office	2	0.05%	2
Retail	172	4.58%	174
Restaurant/Bar/Lounge	45	1.20%	46
Industrial/Manuf.	6	0.16%	6
Leisure/Outdoors	50	1.33%	51
Agriculture	2	0.05%	2
Church	18	0.48%	18
Schools/Colleges	38	1.01%	38
Government/Public Bldgs	60	1.60%	61
Total	3,755		3,804

The traffic-related rescue incidents are allocated to land uses on the basis of the amount of traffic generated by each type of land use. In Table 28, the number of dwelling units and square feet of non-residential construction in the Sumter County

Fire service area is multiplied times the number of trips that are generated by each land use type as reported in the 7th Edition of Trip Generation by the Institute of Transportation Engineers (ITE). (The trip rates in are one-half of ITE's trip rates in order to account for the trips each land use generates while excluding the "return" trip). The result is the total trips associated with each land use type. The percent of trips associated with each land use type is calculated from the total of all trips.

In the final calculation in Table 28 the total 283 annual rescue incidents that are traffic-related (279 traceable + 4 allocated) is allocated among the land use types using the percent of trips generated.

Table 28: Traffic Related Rescue Incidents (Allocated to Land Uses)

Land Use	Units Of Development in Sumter Fire Service Area		ITE Trip Generation Rate ÷ 2 Per Unit Of Development	Total Trips	Percent Of Trips Generated (Trips ÷ 113,903)	Annual Traffic Related Rescue Incidents Per Unit Of Development (% x 283)
Residential	10,603	d.u	4.66500	49,463	38.99%	110
Non-Residential						
Hotel/Motel	21,448	sq.ft	0.00409	88	0.07%	0
Hospital/Clinic	106,686	sq.ft	0.00879	938	0.74%	2
Group Living	109,538	sq.ft	0.00305	334	0.26%	1
Office	321,227	sq.ft	0.00551	1,770	1.40%	4
Retail	2,283,455	sq.ft	0.02147	49,026	38.65%	109
Restaurant/Bar/Lounge	213,551	sq.ft	0.06358	13,578	10.70%	30
Industrial/Manuf.	1,261,317	sq.ft	0.00349	4,402	3.47%	10
Leisure/Outdoors	63,343	sq.ft	0.01166	739	0.58%	2
Agriculture	673,482	sq.ft	0.00000	0	0.00%	0
Church	59,953	sq.ft	0.00456	273	0.22%	1
Schools/Colleges	216,045	sq.ft	0.00645	1,393	1.10%	3
Government/Public Bldgs	270,225	sq.ft	0.01795	4,851	3.82%	11
Total				126,854		283

Table 29 summarizes the results of the analysis of rescue incidents. The total annual rescue incidents is a combination of the rescue incidents allocated among direct responses to land use categories (from Table 27) and the allocation of traffic-related incidents based on trip generation rates (from Table 28).

Table 29: Total Annual Rescue Incidents By Land Use

Land Use	Annual Rescue Incidents Direct To Land Use	Annual Traffic Related Rescue Incidents By Land Use	Total Annual Rescue Incidents By Land Use
Residential	3,034	110	3,145
Non-Residential			
Hotel/Motel	15	0	15
Hospital/Clinic	82	2	84
Group Living	275	1	275
Office	2	4	6
Retail	174	109	284
Restaurant/Bar/Lounge	46	30	76
Industrial/Manuf.	6	10	16
Leisure/Outdoors	51	2	52
Agriculture	2	0	2
Church	18	1	19
Schools/Colleges	38	3	42
Government/Public Bldgs	61	11	72
Total	3,804	283	4,087

The final step in determining the annual rescue incident rate per unit of development is shown in Table 30. The total annual rescue incidents for each type of land use (from Table 29) are divided by the number of dwelling units or square feet of structures to calculate the annual rescue incident rate per dwelling unit or square foot. The units of development are the same as was used to determine traffic-related incidents (see Table 28).

The results in Table 30 show how many times an average unit of development has a rescue incident to which Sumter County Fire Rescue responds. For example, a residential dwelling unit has an average of 0.2965733 rescue incidents per year. This is the same as saying that 29.66% of all residential dwellings have a rescue incident in a year. Another way of understanding this information is that an average residential dwelling unit would have a rescue incident once every 3.4 years.

Table 30: Annual Rescue Incidents By Land Use

Land Use	Total Annual Rescue Incidents To Land Use	Units Of Development	Annual Rescue Incidents Per Unit Of Development
Residential	3,145	10,603 d.u.	0.2965733 per dwelling unit
Non-Residential			
Hotel/Motel	15	21,448 sq.ft	0.0007177 per sq ft
Hospital/Clinic	84	106,686 sq.ft	0.0007888 per sq ft
Group Living	275	109,538 sq.ft	0.0025133 per sq ft
Office	6	321,227 sq.ft	0.0000186 per sq ft
Retail	284	2,283,455 sq.ft	0.0001242 per sq ft
Restaurant/Bar/Lounge	76	213,551 sq ft	0.0003552 per sq ft
Industrial/Manuf.	16	1,261,317 sq.ft	0.0000126 per sq ft
Leisure/Outdoors	52	63,343 sq.ft	0.0008257 per sq ft
Agriculture	2	673,482 sq.ft	0.0000030 per sq ft
Church	19	59,953 sq.ft	0.0003143 per sq ft
Schools/Colleges	42	216,045 sq.ft	0.0001926 per sq ft
Government/Public Bldgs	72	270,225 sq ft	0.0002650 per sq ft
Total	4,087		

Rescue Incident Capital Cost Per Unit Of Development

The capital cost of rescue incidents per unit of development is determined by multiplying the annual rescue incidents per unit of development (from Table 30) times the annual capital cost per rescue incident of each type of apparatus (from Table 25) and fire station (from Table 12), then multiplying that result times the useful life of the apparatus or fire station.[4]

Annual Rescue Incidents Per Unit Of Development	x	Annual Cost Per Rescue Incident	x	Useful Life Of Apparatus or Station	=	Rescue Incident Capital Cost Per Unit Of Development

In Tables 31 – 34 on the following pages, each rescue incident rate (from Table 30) is multiplied by the annual capital cost per rescue incident. The result is then multiplied times the useful life of the apparatus or station to calculate the capital cost per unit of development for each type of apparatus and station.

[4] Some fire and rescue impact fees are calculated for the economic life of the property paying the impact fee, rather than the useful life of the apparatus and stations that provide the fire and rescue services. Both methods meet the legal requirements for impact fees. The choice of method is made by the local government adopting the impact fee. Sumter County decided to use the useful life of the apparatus and fire stations.

Table 31 calculates the capital costs of an Aerial Tower per unit of development. For example, residential dwelling units average 0.2965733 fire incidents per year (i.e., 29.7% of a fire incident per year). Multiplying this times the annual capital cost of $0.66 per incident produces the result that it costs $0.1964 per dwelling unit to provide it with aerial tower trucks for one year. Since the aerial tower truck lasts 10 years, the residential dwelling needs to pay for 10 times the annual rate, for a total of $1.9635.

Table 31: Aerial Tower Cost Of Responses to Rescue Incidents at Land Use Categories

Land Use	Annual Rescue Incidents Per Unit of Development		Annual Aerial Tower Cost at At $0.66 Per Incident	Total Aerial Tower Cost At 10 Year Life
Residential	per dwelling unit	0.2965733	0.1964	1.9635
Non-Residential				
Hotel/Motel	per sq. ft.	0.0007177	0.0005	0.0048
Hospital/Clinic	per sq. ft.	0.0007888	0.0005	0.0052
Group Living	per sq. ft.	0.0025133	0.0017	0.0166
Office	per sq. ft.	0.0000186	0.0000	0.0001
Retail	per sq. ft.	0.0001242	0.0001	0.0008
Restaurant/Bar/Lounge	per sq. ft.	0.0003552	0.0002	0.0024
Industrial/Manuf.	per sq. ft.	0.0000126	0.0000	0.0001
Leisure/Outdoors	per sq. ft.	0.0008257	0.0005	0.0055
Agriculture	per sq. ft.	0.0000030	0.0000	0.0000
Church	per sq. ft.	0.0003143	0.0002	0.0021
Schools/Colleges	per sq. ft.	0.0001926	0.0001	0.0013
Government/Public Bldgs.	per sq. ft.	0.0002650	0.0002	0.0018

Table 32 calculates the capital cost per unit of development for engines responding to fire incidents. The incident rate (from Table 30) is multiplied by the engine's capital cost per fire incident ($1.26 from Table 25). The result is then multiplied times the 15-year useful life of an engine to calculate the capital cost per unit of development for engines.

Table 32: Engine Cost Of Responses to Rescue Incidents at Land Use Categories

Land Use	Annual Rescue Incidents Per Unit of Development		Annual Engine Cost At $1.26 Per Incident	Engine Cost At 15 Year Life
Residential	per dwelling unit	0.2965733	0.3736	5.6035
Non-Residential				
Hotel/Motel	per sq. ft.	0.0007177	0.0009	0.0136
Hospital/Clinic	per sq. ft.	0.0007888	0.0010	0.0149
Group Living	per sq. ft.	0.0025133	0.0032	0.0475
Office	per sq. ft.	0.0000186	0.0000	0.0004
Retail	per sq. ft.	0.0001242	0.0002	0.0023
Restaurant/Bar/Lounge	per sq. ft.	0.0003552	0.0004	0.0067
Industrial/Manuf.	per sq. ft.	0.0000126	0.0000	0.0002
Leisure/Outdoors	per sq. ft.	0.0008257	0.0010	0.0156
Agriculture	per sq. ft.	0.0000030	0.0000	0.0001
Church	per sq. ft.	0.0003143	0.0004	0.0059
Schools/Colleges	per sq. ft.	0.0001926	0.0002	0.0036
Government/Public Bldgs.	per sq. ft.	0.0002650	0.0003	0.0050

Table 33 calculates the capital cost per unit of development for rescue brush trucks responding to rescue incidents. The incident rate (from Table 30) is multiplied by the rescue brush truck's capital cost per fire incident ($49.90 from Table 25). The result is then multiplied times the 6-year useful life of a brush truck to calculate the capital cost per unit of development for brush trucks.

Table 33: Rescue Brush Truck Cost Of Responses to Rescue Incidents at Land Use Categories

Land Use	Annual Rescue Incidents Per Unit of Development		Annual Rescue Brush Cost At $49.90 Per Incident	Rescue Brush Cost At 6 Year Life
Residential	per dwelling unit	0.2965733	14.7992	88.7952
Non-Residential				
Hotel/Motel	per sq. ft.	0.0007177	0.0358	0.2149
Hospital/Clinic	per sq. ft.	0.0007888	0.0394	0.2362
Group Living	per sq. ft.	0.0025133	0.1254	0.7525
Office	per sq. ft.	0.0000186	0.0009	0.0056
Retail	per sq. ft.	0.0001242	0.0062	0.0372
Restaurant/Bar/Lounge	per sq. ft.	0.0003552	0.0177	0.1063
Industrial/Manuf.	per sq. ft.	0.0000126	0.0006	0.0038
Leisure/Outdoors	per sq. ft.	0.0008257	0.0412	0.2472
Agriculture	per sq. ft.	0.0000030	0.0002	0.0009
Church	per sq. ft.	0.0003143	0.0157	0.0941
Schools/Colleges	per sq. ft.	0.0001926	0.0096	0.0577
Government/Public Bldgs.	per sq. ft.	0.0002650	0.0132	0.0793

Table 34 calculates the capital cost per unit of development for fire stations that house rescue apparatus. The rescue incident rate (from Table 30) is multiplied by the fire station's capital cost per fire and rescue incident ($18.32 from Table 12). The result is then multiplied times the 30-year useful life of a fire station to calculate the capital cost per unit of development for fire stations.

Table 34: Fire Station Cost of Responses to Rescue Incidents at Land Use Categories

Land Use	Annual Rescue Incidents Per Unit of Development		Fire Station Cost At $18.32 Per Incident	Fire Station Cost At 30 Year Life
Residential	per dwelling unit	0.2965733	5.4332	162.9951
Non-Residential				
Hotel/Motel	per sq. ft.	0.0007177	0.0131	0.3944
Hospital/Clinic	per sq. ft.	0.0007888	0.0145	0.4335
Group Living	per sq. ft.	0.0025133	0.0460	1.3813
Office	per sq. ft.	0.0000186	0.0003	0.0102
Retail	per sq. ft.	0.0001242	0.0023	0.0682
Restaurant/Bar/Lounge	per sq. ft.	0.0003552	0.0065	0.1952
Industrial/Manuf.	per sq. ft.	0.0000126	0.0002	0.0069
Leisure/Outdoors	per sq. ft.	0.0008257	0.0151	0.4538
Agriculture	per sq. ft.	0.0000030	0.0001	0.0017
Church	per sq. ft.	0.0003143	0.0058	0.1728
Schools/Colleges	per sq. ft.	0.0001926	0.0035	0.1058
Government/Public Bldgs.	per sq. ft.	0.0002650	0.0049	0.1456

Table 35 combines the capital costs of all types of apparatus and station (from Tables 31 – 34) to show the total capital cost of responses to rescue incidents per unit of development. For example, residential dwelling unit costs are added as follows:

Cost Component	Cost	Source
Aerial Tower	$ 1.9635	Table 31
Engine	5.6035	Table 32
Rescue/Brush	88.7952	Table 33
Station	162.9951	Table 34
Total	259.36	

This example is repeated for each land use to combine its capital costs of all types of apparatus and station in Table 35.

Table 35: Total Capital Cost Of Responses to Rescue Incidents at Land Use Categories

Land Use	Unit of Development	Rescue Incident Cost of All Apparatus and Station
Residential	per dwelling unit	259.36
Non-Residential		
Hotel/Motel	per sq. ft.	0.63
Hospital/Clinic	per sq. ft	0.69
Group Living	per sq. ft.	2.20
Office	per sq. ft.	0.02
Retail	per sq. ft.	0.11
Restaurant/Bar/Lounge	per sq. ft.	0.31
Industrial/Manuf.	per sq. ft.	0.01
Leisure/Outdoors	per sq. ft.	0.72
Agriculture	per sq. ft.	0.00
Church	per sq. ft.	0.27
Schools/Colleges	per sq. ft.	0.17
Government/Public Bldgs.	per sq. ft.	0.23

7. IMPACT FEE PER UNIT OF DEVELOPMENT

In his chapter the fire and rescue cost per unit of development (from Chapters 4 and 6) are used to calculate the total fire protection facilities cost per unit of development. This chapter also addresses the credits for payments of other revenues. The revenue credits are subtracted from the total fire protection facilities cost per unit of development and the result is the fire impact fee rates for Sumter County.

Fire and Rescue Cost Per Unit Of Development

The fire and rescue cost per unit of development (from chapters 4 and 6) are combined to determine the total fire and rescue cost per dwelling unit or non-residential square foot.

Fire Incident Cost Per Unit of Development	+	Rescue Incident Cost Per Unit of Development	=	Fire and Rescue Cost Per Unit Of Development

In Table 36 the fire and rescue cost per unit of development (from Tables 23 and 35) are added together to determine the fire and rescue cost per dwelling unit or non-residential square foot.

Table 36: Fire Station Cost of Responses to Rescue Incidents at Land Use Categories

Land Use	Unit of Development	Fire Incident Life Cost Of All Apparatus And Station	Rescue Incident Life Cost Of All Apparatus And Station	Fire and Rescue Life Cost of All Apparatus And Station
Residential	per dwelling unit	181.91	259.36	441.27
Non-Residential				
Hotel/Motel	per sq. ft.	0.78	0.63	1.41
Hospital/Clinic	per sq. ft.	0.24	0.69	0.93
Group Living	per sq. ft.	0.89	2.20	3.08
Office	per sq. ft.	0.11	0.02	0.13
Retail	per sq. ft.	0.46	0.11	0.57
Restaurant/Bar/Lounge	per sq. ft.	1.35	0.31	1.66
Industrial/Manuf.	per sq. ft.	0.09	0.01	0.10
Leisure/Outdoors	per sq. ft.	0.54	0.72	1.26
Agriculture	per sq. ft.	0.02	0.00	0.02
Church	per sq. ft.	0.34	0.27	0.61
Schools/Colleges	per sq. ft.	0.36	0.17	0.52
Government/Public Bldgs.	per sq. ft.	0.68	0.23	0.91

Adjustments (Revenue Credits) and Impact Fees

The final step in determining the fire protection impact fee is to reduce the cost per dwelling unit or non-residential square foot by subtracting anycredits for other revenue from existing and new development that Sumter County will use to pay for part of the cost of the same fire protection facilities that are the basis of the impact fee.

Fire and Rescue Cost Per Unit of Development	-	Adjustment For Revenue Credits	=	Impact Fee Per Unit Of Development

New development will be given an adjustment for future payments of other revenues that are used to pay for the same new fire protection facilities that are required to serve the new development.

Adjustments are *not* given for other payments that are *not* used for new fire protection facilities needed for new development. Such an adjustment would extend to payments of all taxes for all purposes to all forms of governments, which contradicts the well-established system of restricting fees, charges, and many taxes for specific public facilities and services[5]. Adjustments are not given for revenues that are used for repair, maintenance or operating costs because impact fees are not used for such expenses.

The only revenue sources to be included in the adjustment are those which are used for fire protection facilities capacity expansion according to law and local policy or practice. Sumter County uses fire special assessments to pay for all capital costs of fire and rescue capital facilities that are not eligible for impact fees, such as replacement or renovation of existing stations and apparatus. For the purpose of this impact fee rate study, it is assumed that the County will use other sources of revenue to pay for 10% of the cost of fire and rescue capital facilities needed to serve new development.

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[5] An example of this principle is found in the impact fee statutes for the State of Washington. In the following statute, a "system improvement" is a capital improvement that can be financed by impact fees. RCW 82.02.060(1)(b) requires an adjustment for revenue credits to be given for "...payments made or reasonably anticipated to be made by new development to pay for particular system improvements in the form of user fees, debt service payments, taxes, or other payments *earmarked for or proratable to the particular system improvement* (emphasis added);"

As a result, the revenue credit per dwelling unit or square foot is 10% of the total fire and rescue cost per unit of development. Table 37 shows the cost per dwelling unit or non-residential square foot from Table 36, the 10.00% revenue credit adjustment, and the impact fee after the credit is subtracted from the full cost.

Table 37: Impact Fees By Land Use

Land Use	Total Fire and Rescue Cost Per Unit Of Development	Adjustment (10% Revenue Credit)	Fire and Rescue Impact Fee Per Unit of Development	
Residential	441.27	44.13	397.14	per dwelling unit
Non-Residential				
Hotel/Motel	1.41	0.14	1.27	per sq ft
Hospital/Clinic	0.93	0.09	0.84	per sq ft
Group Living	3.08	0.31	2.78	per sq ft
Office	0.13	0.01	0.12	per sq ft
Retail	0.57	0.06	0.51	per sq ft
Restaurant/Bar/Lounge	1.66	0.17	1.50	per sq ft
Industrial/Manuf.	0.10	0.01	0.09	per sq ft
Leisure/Outdoors	1.26	0.13	1.14	per sq ft
Agriculture	0.02	0.00	0.02	per sq ft
Church	0.61	0.06	0.55	per sq ft
Schools/Colleges	0.52	0.05	0.47	per sq ft
Government/Public Bldgs	0.91	0.05	0.82	per sq ft